United States Department of Agriculture

NRCS

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MINNESOTA BULLETIN NO. 180-5-2

SUBJECT: CPA - INFORMATION ABOUT RUSLE2 FACTORS.

Purpose. To distribute additional information about the use of RUSLE2.

Expiration Date. September 30, 2005.

The following information is being provided in response to questions from the field about the use of the RUSLE2 program. This program will be especially important in doing eligibility evaluations for the Conservation Security Program (CSP). This information will be added to the "Guidelines for Use of RUSLE2 Factors" document, which will be posted on the Minnesota NRCS web site, on the Agronomy page.

1. Planting dates: the question was asked about the average dates for planting corn and soybeans that are used in the program. These dates are intended to be the average date (averaged over a period of years) that 50 to 75% of the crop is planted. The reference being used is the Minnesota Agricultural Statistics. This information is available on the web at http://www.nass.usda.gov/mn/annbulls.htm. The average date (1999 – 2003) that 75% of the corn in Minnesota is planted is May 13th. The average date for 50% of the corn planted is May 3rd. In RUSLE2, we are using May 10 as the average corn planting date for CMZ 1 and May 5 for CMZ 4. We have found that your soil loss answers will not change very much at all unless you change the dates by at least two – three weeks. Based on the information from Ag Statistics, there is not currently a reason to change the average dates that the program is using. If any of the DCs have references with vastly different average dates, send those references to Robin Martinek, State Agronomist to be checked out.

2. For soybeans, the average date (1999 – 2003) that 75% of the soybeans in Minnesota are planted is May 28th. The average date for 50% of the soybeans planted is May 19. We are using May 25 as the date in CMZ 1 and May 15 in CMZ 4. Again, those dates seem to be in line with the Ag Statistics. If someone has other references, please send them to Robin Martinek. In checking with the agronomists in several other states, the dates in their ag statistics books were similar.

3. Concerning the addition of another implement to the database (the DMI or disks chisel), Dave Lightle (the national program manager for RUSLE2) was asked about the need to do that. Following is the essence of what he said:

   - "We are probably splitting hairs when it comes to the chisel plows vs. disks chisel. These machines can either have the front gang from a heavy tandem disk in front of the chisel shanks or a set of straight coulters or a number of variations of that. Usually they are set

to cut and size the residue so it will flow through the chisel shanks without plugging. The various chisel plows currently in the database represent all of these variations. If I built another record for the disk chisel, it would probably have the same numbers as the chisel plows but just a different name. We can't be more specific because of all the other variables related to age of the residue, moisture content of the soils, depth of operation, speed, etc." Dave suggests that one way to model these implements is to just choose the chisel plow and then adjust the residue burial, make it bury a little more or less that the chisel plow, depending on what the machine actually is doing. This can be done in the profile screen in step 4c, *Adjust Residue Burial Level*. If we use two implements he says the program may over account for the effect of the additional disk. "If the gang is straight coulters or concave disks set straight that just cut the residue, I would ignore it. If the disk blades are concave and the blades or gangs are angled and aggressive then use the light finishing disk ahead of the chisel. If there are two disk gangs ahead of the chisels and they are aggressive then use either the secondary tandem disk or the primary tandem disk depending on judgment."

- "The effect of the single gang of disks on the front of the chisel isn't nearly as severe as using the tandem disk itself. I don't have a single disk gang in the database and even the light finishing disk is probably more aggressive than the single disk gang on the front of the disk chisel. That would bury another 55% of corn type surface residue, where as, if they use the residue adjustment they can vary it just a little which is closer to the truth."

- "If I created new combination operations the values will be somewhere in between probably. But once we start down that road then people will want every variation imaginable when the results are not that different."

- "Having said that, there may be some very aggressive disk chisels on the market that have two disk gangs in front of the chisels. If that is the case then they could use a primary tandem disk operation in addition to the chisel in the RUSLE2 management. To display the impact you could enter them on two successive days."

Remember, this is a model for Conservation Planning where we compare predicted results for one system to that of an alternative, with the purpose of assisting the producer make informed decisions. It is a model and as such approximates the actual results that one may achieve on the ground under the conditions of the day.

Questions on this bulletin should be directed to Robin Martinek, State Agronomist, at (651) 602-7866.

/s/ Ann English, Acting for
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State Conservationist

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